

Amendments to the Claims

Applicants submit this Preliminary Amendment with the National Phase application enclosed herewith, under 35 USC § 371(g), and request that the following amendments be entered. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) A sensor comprising:

a substrate;

a confinement structure ~~disposed on the substrate~~ created from materials applied to the substrate by deposition, wherein the confinement structure comprises at least a first limiting structure defining a first interior space;

a transducer proximal to the first interior space; and

a first synthetic polymer capable of selectively binding a first analyte, within the confinement structure.

2.(original) A sensor as claimed in claim 1, wherein the confinement structure further comprises a second limiting structure defining a second interior space, the second interior space containing the first interior space.

3.(original) A sensor as claimed in claim 2, wherein the confinement structure further comprises one or more further limiting structures defining one or more further interior

spaces, the one or more further interior spaces each containing ~~an preceding~~ interior space.

4. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the first synthetic polymer capable of selectively binding a first analyte is disposed in the first interior space.

5. (currently amended) A sensor as claimed in ~~any preceding~~ claim 3, wherein the first synthetic polymer capable of selectively binding a first analyte is disposed in a space selected from the group consisting of: the second interior space, and a or one or more further interior space[[s]].

6. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the internal diameter of the first limiting structure is about 10-350 μm .

7. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein height of the first limiting structure is about 1-10 μm .

8. (currently amended) A sensor as claimed in ~~any of claim~~[[s]] 2 to 7, wherein the internal diameter of the second limiting structure is about 50-600 μm .

9. (currently amended) A sensor as claimed in ~~any of claim~~[[s]] 2 to 8, wherein the height of the second limiting structure is about 1- 100 μm .

10. (currently amended) A sensor as claimed in ~~any preceding~~ claim 2, wherein the limiting structures of the confinement structure are annular.

11. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the sensor further comprises:

at least one additional confinement structure ~~as defined in any preceding claim~~;
a transducer proximal to the first interior space of each of the at least one additional confinement structures; and
a material contained within the at least one additional confinement structure, wherein the material is selected from the group consisting of: the synthetic polymer capable of selectively binding a first analyte, a further synthetic polymer capable of selectively binding a further analyte, ~~or~~ and a reference material.

12. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the first synthetic polymer is a molecularly imprinted polymer.

13. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the first synthetic polymer is a polymer capable of selectively binding a substance selected from the group consisting of: morphine, propofol, an antibiotic ~~or~~ and IMA.

14. (original) A sensor as claimed in claim 11, wherein the further synthetic polymer is a

molecularly imprinted polymer.

15. (original) A sensor as claimed in claim 11, wherein the sensor comprises at least one additional confinement structure having a reference material therein, and the first synthetic polymer is a molecularly imprinted polymer and the reference material is a corresponding non-imprinted polymer.

16. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1 wherein a space selected from the first, second and a or further interior space[[s]] contains a material selected from the group consisting of a conducting material and/or a mediator.

17. (original) A sensor as claimed in claim 16, wherein the conducting material is an electrolyte.

18. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the at least one confinement structure further comprises one or more additional substances which provide[[s]] a specific environment therein.

19. (currently amended) A sensor as claimed in claim ~~14-18~~, wherein the specific environment is a non-aqueous environment.

20. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the transducer is disposed on the substrate.

21. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the transducer is selected from the group consisting of: an electrochemical, conductimetric, optical, fluorescent, luminescent, absorption, time-of-flight, gravimetric, strain or displacement, surface-acoustic wave, resonant, ~~or~~ thermal transducer, and ~~or~~ combinations thereof.

22. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the substrate is a silicon wafer.

23. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the substrate is substantially planar.

24. (currently amended) A sensor as claimed in ~~any preceding~~ claim 1, wherein the confinement structure is fabricated from a polyimide.

25. (currently amended) A method of detecting a target species in a sample comprising contacting a sensor as claimed in ~~any preceding~~ claim 1 with a sample containing or suspected to contain the target species.

26. (original) A method as claimed in claim 25, wherein the sample is returned to the patient.

27. (original) A method as claimed in claim 25, wherein the sample is not returned to the